IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Akira HATAKEYAMA et al. Group Art Unit: 1756

Application No.: 10/825,420 Examiner: John A. MCPHERSON

Filed: April 16, 2004

For: BLACK MATRIX AND METHOD FOR MANUFACTURING THE SAME

DECLARATION UNDER 37 C.F.R. §1.132

Honorable Commissioner of Patents and Trademarks

P.O. Box 1450, Alexandria, Virginia 22313-1450

Sir:

I, Akira HATAKEYAMA, do declare and state as follows:

I graduated from the University of Tokyo, Graduate School of Science, Department of Correlative Study of Physics and Science with a Master's degree in Science in March 1980;

I joined Fuji Photo Film Co., Ltd. in April 1980 and have been working there ever since;

I was involved in the development of silver halide photographic photosensitive material from April 1980 to June 1998;

From June 1998 to present, I have been involved in the development of thermal transfer image recording materials

including black matrix used for liquid crystal displays;

I am the inventor of the subject matter disclosed and claimed in the above-identified application; and

I am familiar with the Office Action of August 30, 2005, and understand that the Examiner has rejected Claims 1-3 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,631,753 (US'753).

The following additional experiments were carried out under my supervision in order to make the advantages of the subject matter more clear.

Experiment: Observation and Evaluation of Black matrix taught by US'753

Firstly, Comparative examples 3-1 to 3-3, each having an electroless-plated black matrix layer, were prepared in the same manner as Sample 1 in column 10, line 45 to column 11, line 13 of US'753, except that: silver chloride was used in place of palladium chloride in view of coordinating the material of the metal fine particles contained therein to that of the present invention; respective thickness of a black matrix layer and a volume fraction were varied as shown in the following Table 3; and heat-treating at 220°C for 2 hours was further applied similarly to in the Examples of the present invention as

described on page 28 of the specification of the present application.

In order to investigate a relationship between a hue before heat-treating and a hue after heat-treating, the hue of the thus obtained Comparative examples 3-1 to 3-3 before and after the heat-treating were visually evaluated under the same criteria for the hue change as shown on page 28 of the specification of the present application. The results are also shown in the following Table 3. For reference, Example 2-1 as disclosed in Table 2 on page 31 of the specification of the present application is also shown in Table 3.

As is understood from the following, the Comparative examples that are prepared by an electroless plating process as taught in US'753 do not provide a favorable result even if the volume fractions thereof are adjusted within the range of 0.05-0.70 as claimed in the present invention.

Table 3

Sample No	Photosensitive film thickness (μm)	Volume fraction	Hue Before heating	Hue After heating
Comparative Example 3-1	0.8	0.16	D	E
Comparative Example 3-2	1.0	0.12	C	D
Comparative Example 3-3	1.8	0.07	C	D
Example 2-1	0.88	0.07	A	A

In addition, samples of the Comparative examples 3-1 to 3-3, each of which was cut into sections having a 100 nm-thickness, were subjected to visual observation by using a transmission electron microscope (trade name: JEM 2010, manufactured by JEOL Ltd.) at x100,000 magnification. It was observed that large numbers of the metal fine particles, which have extremely small diameters and most of which are connected with other particles, were contained in the black matrix layers of Comparative examples 3-1 to 3-3.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

DATE: December 28 2005

Akira Hatakeyama

Akira HATAKEYAMA